



Original Article



Level of Patient Satisfaction with Mandibular Acrylic Removable Partial Dentures (RPDS) for Different Kennedy Classes

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ABSTRACT

Tooth loss affects facial profile, speech, and mastication, limiting social activities. Maintaining oral health involves using prostheses like implants, bridges, and partial dentures, with acrylic polymers being widely used. Various classifications are used for partially edentulous arches, among them Edward Kennedy's classification being the most often accepted. **Objective:** To assesses patient satisfaction for two months about mandibular Removable Partial Dentures (RPDs) utilizing the Short Assessment of Patient Satisfaction (SAPS) scale from the University of Wollongong's Centre for Health Service Development. **Methods:** A Cross-sectional observational study was conducted at Outpatient Department (OPD) of prosthodontics, Institute of Dentistry, Liaquat University of Medical and Health Sciences, Jamshoro/Hyderabad. Fifty three patients were selected on Non-probability convenient sampling. Data on comfort, speech, chewing ability, and prosthesis aesthetics were collected at insertion and after two months. The outcomes were categorized using the 5-point rating scale, The Short Assessment of Patient Satisfaction (SAPS). **Results:** SAPS was significantly differentiated among Kennedy Classifications at the time of insertion, out of 53 patients who were categorized into class 1 to class 4. The mean age of the patients was 39.6 years, 22 patients were very satisfied, 16 satisfied, and 15 not satisfied, with 25 males and 28 females this studies revealed that female patients are more likely to suffer from tooth loss and manage with partial dentures. **Conclusion:** The majority of patients were satisfied with Mandibular Removable Partial Dentures, with significant differences in SAPS among Kennedy Classifications at insertion and after two months.

INTRODUCTION

Tooth loss can negatively impact facial appearance, communication, and social activities. Prosthetics can preserve oral health and quality of life using alternative methods, like implant-supported prostheses and bridges [1]. Acrylic polymers are economical and suitable for RPD frameworks [2]. Kennedy's classification was created by Edward Kennedy, it comprises four categories, specifically Class I, Class II, Class III, and Class IV Denture satisfaction is influenced by several key factors, including comfort,

chewing ability, appearance, and how well the denture stays in place [3]. Comfort affects how easily a patient can wear the denture without discomfort, while good chewing function allows them to eat properly [4]. Aesthetics play a role in confidence and social interactions, and proper retention helps keep the denture stable during daily activities. These factors are associated with the relationship between the missing teeth and the remaining natural ones, as the position and condition of the existing

teeth affect how well the denture fits and functions [5]. RPD, implant-supported prostheses, and resin-bonded bridges, are widely recommended for the replacement of missing teeth. The selection of an appropriate prosthetic option is influenced by several factors, including the patient's systemic health, anatomical structure, psychological adaptability, and financial limitations [6]. Moreover, these treatment modalities provide flexibility for adjustments in response to potential future tooth loss, supporting long-term functionality and patient satisfaction [6]. Kennedy classification Dr. Edward by introduced a simple system in 1923 for classifying partial edentulism into four classes. Class 1 edentulous regions cause premature molar or premolar loss, Class 2 have absent posterior teeth, Class 3 have both anterior and posterior teeth, and Class 4 has a singular bilateral edentulous space [7]. This classification helps in diagnosis and treatment for prosthodontic rehabilitation, as well as in communication between clinicians [7]. Patient satisfaction with prosthesis is crucial for therapeutic efficacy, with factors like age, edentulous location, occluding teeth, pain, and aesthetic appearance significantly influencing satisfaction [8]. The Short Assessment of Patient Satisfaction (SAPS) is a reliable tool for measuring patient satisfaction with RPD treatment. In RPD, SAPS score range is from 0 (extremely dissatisfied) to 28 (extremely satisfied) [9]. It is important to understand why some patients stop wearing Removable Partial Dentures (RPDs) to improve their overall effectiveness. Discomfort, poor fit, difficulty chewing, dissatisfaction with appearance, and challenges in cleaning the dentures are common reasons for discontinuation. Long term studies on patient satisfaction and compliance can provide valuable insights into these issues. Additionally, analyzing multiple factors such as oral health, personal preferences, and financial constraints can help uncover the key influences on a patient's experience with RPDs. This knowledge can lead to better treatment approaches, improved patient education, and higher long term success rates for RPD therapy [10, 11]. To the knowledge there is no local study on this topic in this population. Due to genetic and educational reasons the result can be different. The objective of this research was to assess the patient satisfaction for 2 months about mandibular RPDs using the SAPS scale.

METHODS

This observational study was conducted at Outpatient Department (OPD) of prosthodontics, Institute of Dentistry, Liaquat University of Medical and Health Sciences, Jamshoro/Hyderabad using non-probability convenience sampling. The study was conducted from 1-11-2021 to 31-10-2022 after ethical approval from Research Ethics Committee via letter no: LUMS/REC-181. The sample

size was determined using the OpenEpi software, yielding a sample of 50 participants with a 95% confidence interval and a 12% margin of error, based on a patient satisfaction rate with RPDs of 73.6% [12]. Patients classified as Kennedy's Class I, II, III, and IV, who were not medically compromised and had been using acrylic mandibular RPDs fabricated by post graduate students for two months were included after obtaining written consent. Patients' satisfaction, along with age and gender, was recorded at the time of insertion and after two months using a validated questionnaire. The questionnaire consists of three sections: the first includes the patient's personal biodata, while the second assesses satisfaction through the evaluation of comfort, mastication, prosthesis design, speech and aesthetics over a two-month period [13]. The third section of the questionnaire was classified, the Short Assessment of Patient Satisfaction (SAPS) was created by the University of Wollongong. SAPS scores are categorised into four groups: In general, SAPS scores can be interpreted as follows: 0 to 10 = Very Dissatisfied: Indicates significant dissatisfaction, with the individual reporting dissatisfaction or strong dissatisfaction in at least four aspects of their healthcare. Suggests a highly inadequate healthcare experience requiring urgent intervention. 11 to 18 = Dissatisfied: Reflects dissatisfaction in at least two areas of healthcare or an absence of a "very satisfied" response in any aspect. Highlight major shortcomings in healthcare that require attention. 19 to 26 = Satisfied: Represents satisfaction, with the individual rating more than half of the SAPS items (4 out of 7) as satisfied or very satisfied. Identifying and addressing any areas of dissatisfaction is essential to enhance their healthcare experience. 27 to 28 = Very Satisfied: Indicates high satisfaction, with the individual expressing satisfaction or strong satisfaction across all seven SAPS items. Suggests that their healthcare experience has met or exceeded their expectations [14]. The overall written response rate was 90 percent. The data were analyzed in SPSS (Statistical Package for Social Sciences) version 22.0. Frequency and percentages were calculated for qualitative variables such as gender, age and Kennedy Classes. Satisfaction was compared at insertion and after two months using Chi-square/Fisher exact test. $P < 0.05$ was set to be significant threshold.

RESULTS

Among the 53 patients, there were 25 male patients (47.2%) and 28 female patients (52.8%) (Figure 1).

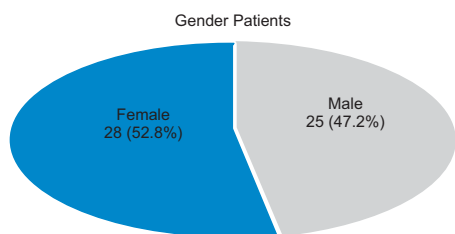


Figure 1: Graphical Presentation of Patients Distribution According to Gender

In this study enrolled patients were grouped as; 20-30 years having 3 (5.7%) patients, 31-40 years having 20 (37.7%) patients and > 40 years having 30 (56.6%) patients (Figure 2).

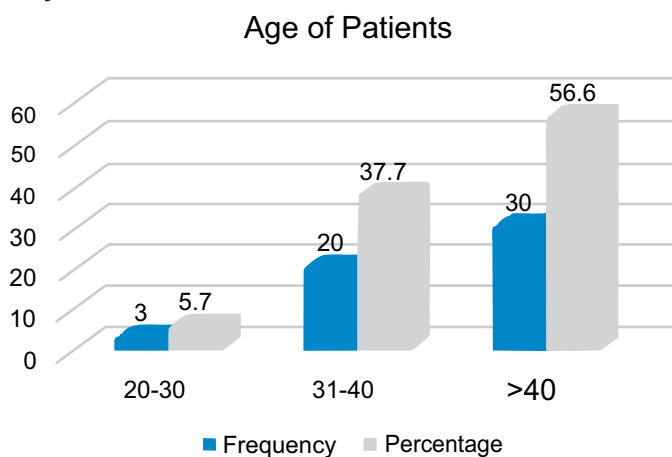


Figure 2: Graphical presentation of Patients Distribution According to Age

Table 2: Patients' distribution according to design of prosthesis level of comfort, aesthetics, speech, mastication, and SAPS

| Patients Distribution According to Design of Prosthesis | | | | Patients Distribution According to Comfort | | | Patients Distribution According to Speech | | |
|---|------------------------|------------------------|---------|--|------------------------|---------|---|------------------------|---------|
| Comfort | Baseline Frequency (%) | 2 Months Frequency (%) | p-Value | Baseline Frequency (%) | 2 Months Frequency (%) | p-Value | Baseline Frequency (%) | 2 Months Frequency (%) | p-Value |
| Prosthesis | | | | | | | | | |
| V.Satisfied | 22 (41.5) | 13 (24.5) | 0.123 | 23 (43.4) | 23 (43.4) | 0.965 | 4 (7.5) | 4 (7.5) | 0.965 |
| Satisfied | 17 (32.1) | 26 (49.1) | | 18 (34.0) | 19 (35.8) | | 37 (69.8) | 36 (67.9) | |
| Not Satisfied | 4 (26.4) | 14 (26.4) | | 12 (22.6) | 11 (20.8) | | 12 (22.6) | 13 (24.5) | |
| Total | 53 (100%) | 53 (100%) | | 53 (100%) | 53 (100%) | | 53 (100%) | 53 (100%) | |
| Aesthetics | | | | | | | | | |
| V.Satisfied | 11 (20.8) | 19 (35.8) | 0.218 | 3 (5.7) | 2 (3.8) | 0.899 | 22 (41.5) | 21 (39.6) | 0.974 |
| Satisfied | 32 (60.4) | 25 (47.2) | | 36 (67.9) | 37 (69.8) | | 16 (30.2) | 17 (32.1) | |
| Not Satisfied | 10 (18.9) | 9 (17.0) | | 14 (26.4) | 14 (26.4) | | 15 (28.3) | 15 (28.3) | |
| Total | 53 (100.0) | 53 (100.0) | | 53 (100.0) | 53 (100.0) | | 53 (100.0) | 53 (100.0) | |

The SAPS showed significant differentiation among the Kennedy classifications both at the moment of insertion (P value <0.001) and after two months (P-value <0.001).

At the time of insertion, the satisfaction rate for SAPS was 41.5% and 39.6% in 22 and 21 patients, respectively. After two months, the satisfaction rate was 30.2% and 32.1% in 16 and 17 patients, respectively. Fifteen patients (28.3%) were not satisfied (Table 3).

According to Kennedy classification, Class 1 included 15 patients, accounting for 28.3% of the total. Class 2 had 10 patients, representing 18.9% of the total. Class 3 consisted of 23 patients, making up 43.4% of the total. Class 4 had 5 patients, accounting for 9.4% of the total (Table 1).

Table 1: Patients Distribution According to Kennedy Classification (n=53)

| Classification | Frequency (%) |
|----------------|---------------|
| Class 1 | 15 (28.3) |
| Class 2 | 10 (18.9) |
| Class 3 | 23 (43.4) |
| Class 4 | 5 (9.4) |
| Total | 53 (100.0) |

Patient's distribution was done according to design of prosthesis, comfort, aesthetics speech, mastication and SAPS at base line and after 2 months is shown in table 2.

Table 3: Stratification of Patients According to SAPS with Kennedy Classification at Baseline (n=53)

| Kennedy Classification | Successful Tamponade n=125 (%) | | | p-value |
|------------------------|--------------------------------|-------------------------|-----------------------------|---------|
| | Very Satisfied Frequency (%) | Satisfied Frequency (%) | Not Satisfied Frequency (%) | |
| Class 1 | 0 (0.0) | 0 (0.0) | 15 (100.0) | <0.001 |
| Class 2 | 0 (0.0) | 10 (62.5) | 0 (0.0) | |
| Class 3 | 22 (100.0) | 1 (6.3) | 0 (0.0) | |
| Class 4 | 0 (0.0) | 5 (31.3) | 0 (0.0) | |
| Total | 22 (100.0) | 16 (100.0) | 15 (100.0) | |

DISCUSSION

The study evaluated 53 patients with removable partial dentures, with 25 males and 28 females. Studies show that female patients are more likely to suffer from tooth loss and manage with partial dentures, with varying satisfaction rates across different studies, such as Ibrahim LM, reports the 55.9% female patients and 44.1% male patients, Salih HA, et al., reported the 68.6% female patients and 31.4% male patients. Zlatarić DK, et al reported the 63.6% female patients and 36.4% male patients [2, 3, 14]. This research shows a significant impact of prosthetic treatments on patient satisfaction and quality of life. The study found that the majority of patients with removable partial dentures were over 40 years old (56.6%), followed by those aged 31-40 years (37.5%), and only 5.7% were in the 20-30 age group corresponding to studies by Salih HA 45.42 ± 0.682 years, Aljabri MK 51.18 ± 13.06 years, Almohsen & Mahmoud 52.25 ± 1.8 years 10 and Cosme et al., reports the 96.0% patients having age > 40 years [3, 11, 15, 16]. The study analyzed patients with removable partial dentures based on Kennedy Classification, with the majority in Kennedy Class 3 (43.4%) patients, followed by Kennedy class 1 having 15 (28.3%) patients, Kennedy class 2 having 10 (18.9%) patients and Kennedy class 4 having 5 (9.4%) patients. A study by Cosme et al., reports the Kennedy class 1 in 40.0% patients followed by Kennedy class 4 in 4.0% patients and Kennedy class 2 in 2.0% patients [16]. Removable partial dentures (RPDs) offer advantages like easy manufacturing and minimally invasive treatment, but they still cause oral issues like mastication, speaking, pain, and aesthetic concerns. Research shows a significant impact of prosthetic treatments on patient satisfaction and quality of life [17]. The study found that patients with removable partial dentures had a mean SAPS score of 9.98 ± 2.79 at baseline and 10.0 ± 2.79 after two months. Most patients (41.5%) and 39.6% were very satisfied, followed by satisfied (30.2%) and not satisfied (28.1%) patients. SAPS was significantly different among Kennedy Classifications at the time of insertion and after two months this aligns with study by Aljabri MK and Almohsen & Mahmoud [11, 15]. Removable partial dentures are a cost-effective, reversible treatment for partial tooth loss, aiming to improve aesthetics, speech, chewing, self-assurance, and psychological well-being [18]. Acrylic resin-based RPDs are preferred in poorer areas due to cost and ease of fabrication [19]. Removable Partial Dentures (RPDs) offer

advantages like easy manufacturing and minimally invasive treatment, but they still cause oral issues like mastication, speaking, pain, and aesthetic concerns [20, 21]. This study was conducting for short duration. Further observation is required. This is Single institute based study with small sample size and high margin of errors.

CONCLUSIONS

This study concluded that the majority of patients expressed satisfaction with Mandibular Removable Partial Dentures; nonetheless, a notable disparity existed in the Subjective Assessment of Prosthesis Satisfaction across various Kennedy classifications.

Authors Contribution

Conceptualization: SB

Methodology: SB, A

Formal analysis: IQ, FJ

Writing, review and editing: SZ, UBS, IQ, FJ

All authors have read and agreed to the published version of the manuscript

Conflicts of Interest

All the authors declare no conflict of interest.

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